

COURSE OUTLINE

PHYS-105 **Introduction to Physical Science** 3 Semester Hours

HOWARD COMMUNITY COLLEGE

Description

PHYS-105 is a course designed for the non-science major outside the allied health area. The student will become knowledgeable of the contributions of physics and chemistry to man's understanding of basic physical science concepts and will expose the student to the basic scientific vocabulary in these sciences. The course emphasis is on the basic scientific principles and their applications in today's society. Basic math skills will be used to illustrate some of these principles. Prerequisite: Eligible to enroll in MATH-070. (3 hours weekly)

Overall Course Objectives

Upon completion of this course, the student should be able to:

1. Identify and address their physical science concepts and alternate concepts (misconceptions).
2. Attain a general understanding of the basic principles of physics and chemistry.
3. Integrate the principles of physics and chemistry into discussions of their practical applications in everyday life including the environment.
4. Demonstrate familiarity with general scientific terminology and materials.
5. Apply physical science principles and simple mathematical equations to solve elementary physical science-related problems.
6. Develop an appreciation for the physical environment.
7. Demonstrate knowledge of the role of physical science in solving contemporary problems and its impact on the way we live.
8. Demonstrate problem-solving skills in the classroom and apply to the identification of unknown quantities in correctly answering application questions.

Major Topics

- I. Measurement, Motion and Energy
 - A. Metric and British Systems of Measurement with Conversion Problems
 - B. Linear and Rotational Motion Including Newton's Laws
 - C. Work, Energy, and Power Including Heat and Thermodynamics

- II. Electromagnetism
 - A. Static and Current Electricity
 - B. Magnetism, Electromagnetic Devices, and Electric Power

- III. Waves and Modern Physics
 - A. Waves and Their Properties
 - B. Electromagnetic Waves, with Emphasis on Light
 - C. Structure of the Atom
 - D. Nuclear Energy - Reactions, Reactors, and Its Effects on Man and the Environment

- IV. Chemistry (topics covered as time permits)
 - A. Elements, Compounds and States of Matter
 - B. The Periodic Table and Chemical Bonds
 - C. Atomic and Molecular Weights
 - D. Acids and Bases
 - E. Oxidation and Reduction
 - F. Applications

Course Requirements

Grading/exams: Grading procedures will be determined by the individual faculty member but will be calculated on the basis of exams, assigned homework problems, and quizzes. This course includes a final exam.

Writing: Specific writing assignments will be determined by the individual instructor but will include writing some essay questions on exams and a short critique of a physical science subject.

Other Course Information

This course is a Science core course, Science elective and an Arts and Sciences elective.